of air by charcoal cooled to the temperature of liquid air.

The second method of showing the absorption of air, due to Dr. L. T. Jones, is at once clear by an inspection of *B* in the figure. The vertical stem, up to the branch leading to the charcoal bulb, should be at least 78 cm. long. This stem may also have an enlargement about half way up as shown. A valve should be included to protect the charcoal when not in use. Before starting the experiment the valve is opened and the tube mounted in a bath of mercury. Liquid air is then applied to the charcoal bulb. The absorption proceeds slowly at first, but soon gains headway as the charcoal cools. The speed that the mercury column acquires as it rises up through and fills the enlargement is surprising. Even with the ratio of volume of tube to charcoal as shown in the figure (approximately 4:1) the mercury column will mount to nearly full atmospheric pressure in the short space of five or six minutes.

Added interest is to perform the two experiments simultaneously.

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August, 1915

Occurrence of the Protozoan, Colacium Multoculata Kent, in Iowa

In making collections of *Daphnia,* and other Entomostraca, on October 31, 1914, the writer discovered a small pond near Iowa City, Iowa, which fairly teemed with *Daphnia* of a striking green color.

Examination of these specimens in the laboratory revealed the cause of the coloration to be myriads of individuals of the Protozoa bearing chromatophores and being attached to the surface of the *Daphnia* completely covering, not only the body proper, but even the appendages in many cases.

These Protozoa yielded themselves readily to identification as belonging to the genus *Colacium*—Flagellates closely related to *Euglena* but differing therefrom in one essential, among others, of having a sedentary attached stage as well as a free-swimming stage. In the sedentary stage the individual zooids are attached by pedicles to some object or, as is more often the case, to some other form of animal life.

Kent (1881) mentions, at the close of his discussion of the *Colacium,* a supplementary species for which he proposes the provisional name of *Colacium multoculata.* It is with his description of this species that the animals under the observation of the writer most favorably compare.

As with Kent the writer demonstrated a very short pedicle and in no case was more than a single individual found on one pedicle. There is a general tendency for the animal to assume a quadrate-elliptical form in outline both when free-swimming and fixed, with an occasional broadening near the distal end. The shape is subject to more or less continual change. The chromatophores are very large and seem to be distributed near the periphery of the cell. Kent describes the presence of from two to four red spots instead of the single one commonly present and from this character proposes the name of the species. By far the most of the specimens examined by the writer possessed but one spot, some half dozen individuals from the many showed from two to four as described. In as much as the differing specimens agreed in all other essential characters they were undoubtedly variations of the same species. The possession of a flagellum by the free-swimming form was amply demonstrated.

Edmondson in his treatise on the Protozoa of Iowa[1] includes *Colacium* in his key to genera but states that no species of this genus has been reported within the state. It is probable that other species closely related to the one forming the subject of this note may be added to the list of Iowa Protozoa.

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Spore Measurements

The usual way of giving measurements of spores as width by length in μ is clear and

[1] Davenport Academy of Sciences, 1906.

satisfactory when the dimensions do not vary too much and are fairly constant. Identification by a given description becomes difficult when either one or both dimensions vary between wide limits. The distinguishing dimensional features of the æciospores of a given species, for instance, are not determined by the lowest and highest values (*e. g.*, 15–26 by 22–41μ) that the spores may attain, but by the most common combinations of width and length measured; that is, by the standard values. The latter can not be expressed in averages, which will vary with the numerical basis used and with the personal factor in picking out the spores to be measured. The numerical basis in particular is a factor which has been almost totally neglected in descriptions. I propose to give, in all cases but those of very constant measurements, a formula containing the numerical basis, the extreme range of width and length and the most common combinations of width and length found. The formula in our example would read: (48) 15–26μ by 22–41μ (19–22 by 26–30μ). (48) is self-explanatory; it gives the numerical basis; that is, the number of spores measured. 15–26μ by 22–41μ are the extreme measurements of width and length. (19–22 by 26–30μ) are the standard values of width and length. These values are found by arranging all measurements in two progressive tables, one by widths, the other by lengths. It is then an easy matter to find the most common values.

In cases where misunderstandings may arise the formula can be given as follows: (48 measured) 15–26μ by 22–41μ (standard 19–22 by 26–30μ).

For all measurements of a simple nature the old formula can still be retained, although the numerical basis should in every case be given. The method is, of course, not confined in its usefulness and accuracy to spores alone.

E. P. MEINECKE

THE NORTH CAROLINA ACADEMY OF SCIENCE

THE North Carolina Academy of Science held its fourteenth annual meeting at Wake Forest College on Friday and Saturday, April 30 and May 1, 1915. The reading of papers began at 2:50 P.M. on Friday and continued until 5:30, at which time adjournment was had, followed by the annual meeting of the executive committee. At night Dean Charles E. Brewer, of Wake Forest College, made the academy welcome to the college. President J. J. Wolfe, of the academy, then delivered his presidential address, "The Status of the Theory of Descent." Next Professor John F. Lanneau delivered a lecture "The Cosmoid," illustrated by an apparatus of his own design; and Professor A. H. Patterson gave a short talk on "The Importance of Humidity in Health and the Arts" with a demonstration of an interesting form of humidifier of North Carolina manufacture.

The academy met in annual business meeting on Saturday morning. Reports of the secretary-treasurer and of the various committees were made and an invitation for the academy to hold its next annual meeting at the State Agricultural and Mechanical College was accepted. An interesting discussion on the matter of membership was held and it was resolved to try to bring into the academy in 1916 all the scientific people of the state. To this end a large and representative canvassing committee was appointed. Ten new members were elected, who bring up the total membership to date to 70.

The following officers were elected for 1915–16.

President—A. S. Wheeler, University of North Carolina, Chapel Hill.

Vice-president—W. A. Withers, State Agricultural and Mechanical College, West Raleigh.

Secretary-treasurer—E. W. Gudger, State Normal College, Greensboro.

Additional members executive committee—Z. P. Metcalf, State Agricultural and Mechanical College, West Raleigh; W. C. Coker, University of North Carolina, Chapel Hill; E. T. Miller, Trinity College, Durham.

At the close of the business meeting, the reading of papers was resumed and continued until 1:30 when the program was finished. The total attendance was 21 out of a membership of 70. There were 23 papers on the program, of which only three were read by title. Perhaps the most marked feature of the meeting was the considerable discussion which followed the reading of many of the papers. Including the presidential address, which will be published in the current number of the *Journal* of the Elisha Mitchell Scientific Society, the following papers were presented: